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CLEAN AND EFFICIENT COOKING TECHNOLOGIES AND FUELS

6. CONSUMER PREFERENCES AND STOVE ADOPTION



Photo credit: Winrock International

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6. CONSUMER PREFERENCES AND STOVE ADOPTION

This section provides background information and guidance on cookstove adoption, the importance of consumer preference and how to assess it, the confounding effect of stove stacking (using multiple technologies or fuels in parallel), and how and why to monitor stove use.

WHY IT MATTERS

Cleaner, more efficient cookstoves have the potential to generate a variety of social, economic and environmental benefits, but these benefits can be achieved only if consumers use these stoves correctly and predominantly. The stove's ability to meet consumer needs and expectations is critical both to ensure use, and to build market demand.

BEST PRACTICES

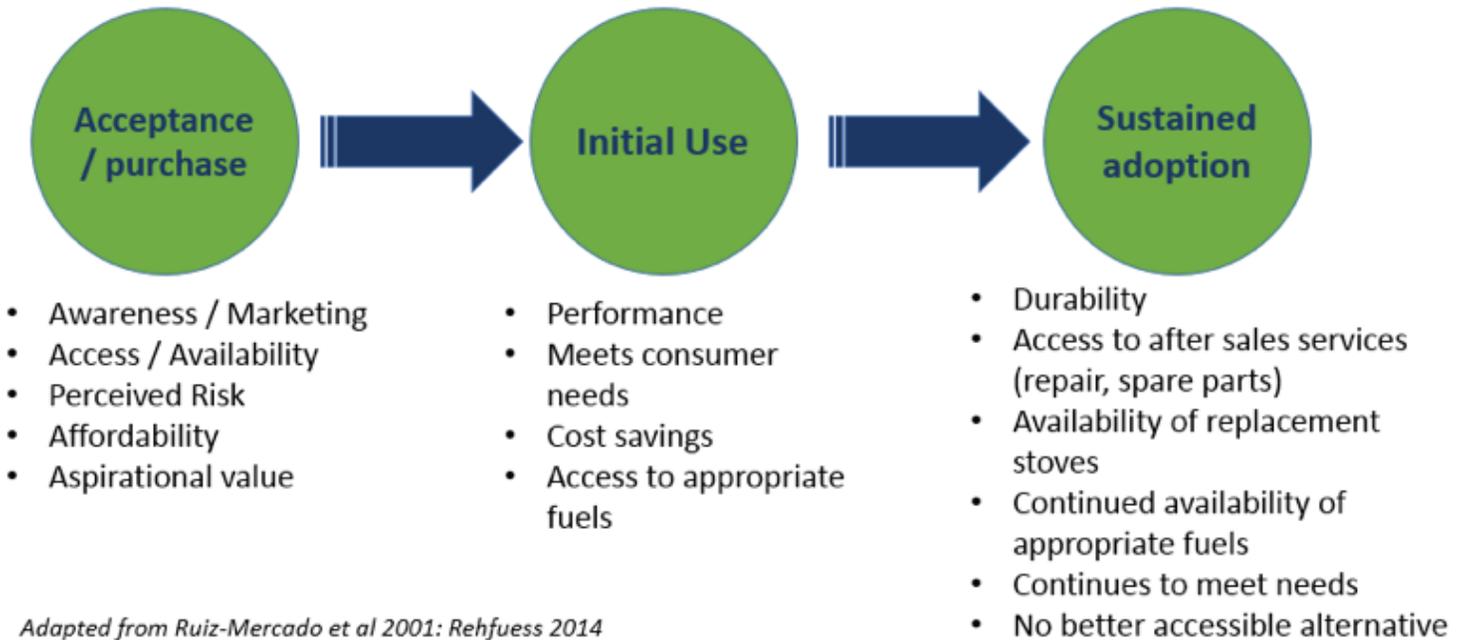
1. Gather consumer research data from existing studies and through household trials, if necessary, to determine whether available stove options are a good match for your target consumers. If not, solicit consumer input to help design or modify a stove with attributes that better meet the needs of your target market.
2. Build consumer education into your program, through product and social marketing, to ensure that end users understand how to use the new fuel/technology and do not hold unrealistic expectations.
3. Monitor stove usage of a representative sample of users via sensors to collect unbiased data on whether they are actually using the stoves, and to what degree; follow-up with consumers to learn more and resolve issues that limit the consistent use of improved stoves.
4. Ensure the supply chain can provide after-sales service. Troubleshooting support, repair shops, warranty fulfillment and availability of replacement parts are critical to reduce risk for the consumer, build brand loyalty, and ensure that consumers continue to use cleaner cookstoves and don't revert to traditional stoves/fuels.

STOVE ADOPTION

Stove adoption consists of three key stages: **1)** uptake/purchase; **2)** initial use; and **3)** sustained, consistent use (which also includes repair and replacement). Adoption is sometimes equated only with acceptance and initial use, but sustained

adoption (e.g., long-term, consistent use) is critical to achieving greater impact. The factors that influence each stage of adoption vary, but center around ease of access; perceived risk; affordability and financial constraints; stove performance; and consumer expectations, [as summarized in the chart below](#):

Challenges and factors influencing adoption



A systematic review of the existing literature on “[Key factors influencing adoption](#)” was completed by Puzzolo et. al in 2013. The review found that “factors such as meeting household needs, fuel savings, higher income levels, effective financing and facilitative government action” were all deemed “necessary but not sufficient” on their own to guarantee adoption, and are highly dependent on context. Two USAID projects, the environmental health project [WASHplus](#) and the research project [Translating Research into Action \(TRAction\)](#) have devoted considerable effort to trying to understand the factors that influence sustained adoption of ICS. In an article summarizing the findings of a meeting of the Working Group to Address Increasing Adoption of Improved Cookstoves hosted by the two projects, the authors noted that “[The adoption of clean cooking technologies goes beyond mere product acquisition and requires attention to issues of cooking traditions, user engagement, gender dynamics, culture, and religion to effect correct and consistent use.](#)”

UNDERSTANDING CONSUMER PREFERENCE AND BEHAVIOR

Consumers will only purchase, use, and especially exclusively use, cookstoves that meet their cooking needs and priorities. These priorities include how consumers value performance and convenience/usability tradeoffs. For example, while cooks generally appreciate fuel savings, fuel savings that are achieved at additional burden of having to chop fuel wood into small pieces and continuously feed the fire may not be an acceptable tradeoff, compared to a low-maintenance traditional stove. Consumer research can help identify stove designs and features that are most valued by a particular consumer group for their main cooking needs, making it more likely that cooks will use the stoves consistently. Through human-centered design approaches, wherein consumers are engaged at the product design level through focus groups, individual interviews, household trials, or market demonstration events, they can provide their input into the development of new stove models.



More details on these kinds of tools for engaging consumers can be found in the Global Alliance for Clean Cookstoves (Alliance) guide on [Market Research in the Clean Cooking Sector](#), developed in collaboration with WASHplus. Findings from consumer focused studies commissioned by the Alliance and its partners can also be found on the Alliance [website](#). For those considering interventions in South Asia, the [Cooking Energy Service Decision Support Tool](#), prepared by the Ashden India Renewable Energy Collective, was developed to help stakeholders “ensure that endusers are at the centre of the decision making process for product selection.”

Consumer research can also identify consumer education needs; i.e., messaging that guides consumers on how to use the stoves to best achieve their own priority benefits, especially when stove operation differs from their traditional experiences. For example, consumers used to an open fire with leaping flames might need education to understand—and accept—that the stove can still cook their food quickly and will use fuel more efficiently with enclosed combustion. Likewise, consumer research can help inform strategies for guiding consumers through new practices that have tangible consumer benefits, and are equally important to sustained adoption, such as warranty registration or ongoing care and maintenance.

Understanding consumer preference is equally important for building market demand and identifying target consumers, as well as informing marketing and financing approaches. It is important to understand that an enduser’s priorities may not be the same as a donor’s; in some cases, social status or aspirational goals might be as important (or even more important) than more tangible benefits such as smoke reduction or cost savings. USAID|TRAction sponsored a special issue of the Journal of Health Communication on “[Advancing Communication and Behavior Change Strategies for Cleaner Cooking](#)” on the role of behavior change strategies within the clean cooking sector and can provide insights for stakeholders crafting marketing and communications strategies around clean cooking.

Identification of different customer segments is important as it allows an organization to structure its marketing strategy around the wants and needs of those particular segments, instead of trying to reach everyone with a “one size fits all” approach. This can be especially relevant if a manufacturer or program implementer is working in multiple settings (i.e., rural and urban) and with households at various income levels, as each type of consumer may respond to a product or marketing message in very different ways. Knowing the types of features and benefits that target consumers value most helps manufacturers and distributors craft marketing messages that are more likely to resonate with the intended purchaser and user. For instance, a [WASHplus consumer preference study](#) in Bangladesh found that none of the improved stove models studied were sufficiently appealing to consumers to include in a national stove program, whereas a similar study in [Nepal](#) found enthusiastic interest in very similar models. Both studies, which used a technique called Trials of Improved Practice (TIPs) (see below), helped inform financing options that were made available to consumers in Nepal through an ongoing government-coordinated campaign.

Trials of Improved Practice (TIPs) is one type of consumer research that can be especially useful in assessing consumer preferences and behavior. TIPs consists of in-home trials of the improved technologies, combined with quantitative and qualitative information gathering through semi-structured questionnaires. The WASHplus project has published a TIPs-focused consumer research toolkit available here: <http://designlab360.org/washpluscookstovetoolkit/>. Households may be asked to compare cooking on the new stove with cooking on the traditional stove using a range of criteria such as fuel use, fuel preparation, smoke emitted, cooking time, fuel tending, aesthetics, stove stability, and flavor of food cooked on the stove. Household members may also be asked questions to perceive whether they think the stove is appropriate for people of their socioeconomic status, will influence how others look at them, etc.

Conducting all of the research techniques provided in the WASHplus toolkit can take a fair amount of time and resources. At a minimum, those interested in promoting cookstoves in a given context should undertake a simple controlled cooking [test](#) with a local cook cooking a typical local meal to at least rule out inappropriate cookstoves, and a few focus group discussions to get initial feedback on cookstove features desired by the consumers. This type of research doesn't provide insight into changes in preferences over time, which has been shown to occur in many places,

but at least provides a snapshot of the appropriateness of a particular cooking technology in a specific context. Ideally, programs that are focused on achieving sustained adoption and impacts should consider longer-term consumer research options.

STOVE STACKING AND BARRIERS TO CONSISTENT, CORRECT USE

When a particular cooking technology meets some, but not all their needs, consumers often opt to use more than one technology in parallel, also known as “stove stacking,” to maximize utility. For example, an improved stove might work well for staple dishes, but an LPG stove is much faster for boiling water to make tea in the morning, and the traditional stove is faster when the cook needs to prepare large amounts of food for special occasions, or animal fodder. Most of us do something similar; using multiple appliances such as ovens, microwaves, toasters, rice cookers and coffee makers. In addition, consumers may use different technologies at different times of year due to seasonal difference in fuel availability, or to meet heating needs in colder months. While this is a rational consumer behavior, stove stacking with lower-quality fuel/stove options limits the potential benefits of the better-performing technologies used. Preferences can change over time irrespective of seasonal differences. WASHplus consumer preference studies in Bangladesh and Nepal found declining preference for improved stoves compared to traditional stoves over time; a 7% drop over 4 months in Nepal, and a 34% drop over just 3 weeks in Bangladesh.

Finally, after-sales service, such as troubleshooting support, repair shops, warranty fulfillment and availability of replacement parts, is critical to ensuring that consumers **can** continue to use their new stoves over time, and don't abandon them because of an easily-fixed malfunction. It's important for product manufacturers and distributors to have ongoing, cost-effective ways for engaging with new and existing customers, to test new marketing messages, promotions and strategies, and gauge customer satisfaction (with service or products), to promote and maintain positive brand associations. The better that implementers can understand consumer preference, motivations/constraints and behavior, the better they can design products and interventions to more fully meet consumer needs. Understanding customer motivations and constraints also facilitates design and delivery of consumer education and marketing campaigns necessary both to build demand and promote correct use.

BEYOND PURCHASE: MEASURING USAGE AND ADOPTION

Cookstove manufacturers, distributors and program implementers can gain valuable consumer insights by tracking actual use of improved and traditional stoves during in-home trials, or post-purchase; usage monitoring is also often required for results-based financing, including carbon finance verification. In surveys, consumers routinely over-report their use of improved stoves, and under-report their use of traditional stoves. Stove usage monitoring sensors (SUMs), ranging from thermocouples to temperature-sensitive iButton data loggers, track changes in stove temperature to determine how often and for how long stoves are used. They are an objective, unobtrusive, quantitative method for assessing stove usage that reduces recall and reporting bias. Beyond tracking whether consumers use their stoves, identifying tasks for which consumers use and don't use their improved stoves can inform cookstove design and marketing around the most frequent and/or energy-intensive tasks, for maximum impact¹.

1. <http://www.ghspjournal.org/content/2/3/268>



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